

Remarks

In the Office action, non-withdrawn claims 1, 4, 17-20 and 27-31 were rejected under 35 U.S.C. § 102(b) as anticipated by Feygin 5,273,406 (the '406 patent); and claims 8 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Feygin in view of Ray (3,951,572).

Claim 1 as amended recites that "during pump operation gas is drawn out of said chamber to draw material into said chamber under negative pneumatic pressure and pressurized gas flows into said chamber to push material out of said chamber under positive pneumatic pressure". Feygin is a peristaltic pump and operates by virtue of the sequential collapsing of a number of tubing bladders. Material is forced out of the bladders by the mechanical pressure of the reduced volume and collapsing bladder against the liquid therein. The material is not forced out by positive pneumatic pressure from gas that flows into the channels 11. It is therefore submitted that claim 1 as amended now clearly distinguishes a Feygin style peristaltic pump. For similar reasons, claim 1 as amended distinguishes over the Ray structure.

Original claim 27 has not been amended because that claim expressly recites that the gas permeable member is disposed in a pressure chamber. Clearly in Feygin (and Ray as well) each housing jacket 2 that includes the pressure fitting 7 is not disposed in a pressure chamber, but rather surrounds its bladder, exactly the opposite structure as presently claimed, as is apparent from the fact that Feygin is a peristaltic pump, not a pneumatic pump as presently claimed, and operates completely differently. Original claim 28 also has not been amended because that claim expressly recites that flow rate of material from the pump is adjustable independent of the pump cycle rate. Feygin provides no teaching or suggestion of this feature. In Feygin, the material flow rate necessarily is dependent and fixed by the pump cycle rate. Even if one assumes for the sake of argument that each segment of Feygin is a "pump", the sequential timing is fixed to allow material to flow at the rate that is fixed by the same sequential speed of operation of each segment. There is no independent structure to control flow rate of the material--material flow rate in Feygin depends on the actuation rate of the collapsible members (i.e. the pump cycle rate) which are also sequentially tied together. In contrast, Applicants teach a structure by which the pump cycle rate and material flow rate may optionally be independent of each other.

The Ray patent teaches the use of simple check valves so that again the material flow rate is dependent on the pump cycle rate, not independent. As to the rejection of claim 9, the check valves of Ray are not separately actuated, they passively open and close simply in response to fluid pressure of the material being pumped.

As to the other dependent claims, those rejections are traversed at least on the basis that the independent claims are patentable over the art of record. Further reasons for patentability of the dependent claims are reserved pending further examination of the independent claims.

With this response, Applicants are submitting an Information Disclosure Statement to provide a translation of the Kazutoshi reference.

The application, in light of the above amendments and arguments, is considered to be in condition for allowance and favorable reconsideration and a notice of allowability are respectfully requested.

Respectfully submitted,

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